

***Acacia gibsonii*, a distinctive, rare new species of *Acacia* sect. *Juliflorae*
(Fabaceae: Mimosoideae) from south-west Western Australia**

Bruce R. Maslin

Western Australian Herbarium, Department of Parks and Wildlife,
Locked Bag 104, Bentley Delivery Centre, Western Australia 6983
Email: Bruce.Maslin@dpaw.wa.gov.au

Abstract

Maslin, B.R. *Acacia gibsonii*, a distinctive, rare new species of *Acacia* sect. *Juliflorae* (Fabaceae: Mimosoideae) from south-west Western Australia. *Nuytsia* 23: 277–281. *Acacia gibsonii* Maslin, a new species with distinctively short, 3-nerved phyllodes and short spikes, and having affinities to *A. incongesta* R.S.Cowan & Maslin is described. The species is known from a geographically very restricted area of greenstone hills between Norseman and Hyden. It is currently listed by its phrase name, *Acacia* sp. Lake Johnson (N. Gibson & M. Lyons 1959), as Priority One under the Department of Environment and Conservation's Conservation Codes for Western Australian Flora.

Introduction

In recent years, the Department of Environment and Conservation (DEC; now the Department of Parks and Wildlife) has undertaken a survey program of the greenstone belts and the Banded Iron Formation (BIF) ranges of the Yilgarn Craton in southern Western Australia. These hitherto poorly known habitats were subsequently shown to be biologically very diverse with some containing a high number of endemic or near-endemic taxa, many of which were undescribed. The new species described here was discovered during the course of one of these surveys but was insufficiently known to be included in the dedicated issue of *Nuytsia* that provided formal scientific description of many of these taxa (see *Nuytsia* vol. 17, 2007).

Taxonomy

Acacia gibsonii* Maslin, *sp. nov.

Type: south of Hyden–Norseman Road, Western Australia [precise locality withheld for conservation purposes], 5 September 2012, *N. Gibson* 6434 (*holo*: PERTH 08396086; *iso*: MEL).

Acacia sp. Lake Johnson (N. Gibson & M. Lyons 1959), Western Australian Herbarium, in *FloraBase*, <http://florabase.dec.wa.gov.au> [accessed 20 February 2013].

Low, spreading, somewhat straggly *shrubs* typically *c.* 0.5(–1) m tall and to 1.5 m diam. *Branchlets* terete, obscurely ribbed, reddish brown aging light grey and slightly roughened, sparsely to moderately muriculate by minute, red-brown, glandular trichomes at extremities, glabrous on mature branchlets. *Stipules* ±persistent, triangular, inconspicuous, 0.5–0.8 mm long, scarious. *Phyllodes* oblong to oblong-elliptic or oblong-obovate or sometimes slightly sigmoid, 6–13 mm long, 1.5–3 mm wide, sometimes crowded on very short branchlets which commonly grow out, straight or very shallowly recurved, ascending to erect with some ±patent, glabrous except for minute, red-brown, glandular trichomes on the normally sparsely tuberculate main nerves and margins of most phyllodes, green; prominently 3-nerved on each face, the nerves raised (at least when dry) and widely spaced, sometimes (on widest phyllodes) with a less pronounced, occasionally sparingly branched nerve between the main nerves; *apex* excentrically mucronate, the mucro 0.4–0.6 mm long, hard, ±pungent and dark brown; *base* equal or unequal; *pulvinus* 0.3–0.5 mm long, resinous or not resinous. *Gland* obscure, situated on upper margin of phyllode 0.5–1 mm above the pulvinus, circular, minute. *Inflorescences* simple, single within axil of phyllodes; *spikes* 5–7 mm long (dry), golden, flowers rather densely arranged within spikes; *receptacles* moderately hirsutulous; *peduncles* to 1 mm long, appressed puberulous; *basal peduncular bract* single, persistent, ovate, shallowly concave, brown, fimbriolate. *Bracteoles* spatulate, 0.6–0.7 mm long, claws narrowly oblong, laminae widely ovate, 0.4–0.5 mm wide, aging brown and ciliate. *Flowers* 4-merous; *sepals* very shortly united at base, membranous, narrowly oblong or spatulate, $\frac{2}{3}$ length of petals, sparsely hairy; *petals* 1–1.2 mm long, glabrous or sometimes sub-glabrous, nerveless. *Pod* (only one seen) ±tightly $1\frac{1}{2}$ coiled, prominently rounded over seeds but not or scarcely constricted between them, *c.* 12 mm long (unexpanded length), 2.5 mm wide, thinly coriaceous, glabrous, mid- to dark-brown, finely longitudinally nerved, marginal nerve not or scarcely thickened. *Seeds* longitudinal in pods, obloid, 2–2.5 mm long, 1.5 mm wide, compressed (*c.* 1.3 mm thick), black, shiny; *areole* ‘u’-shaped, open towards the hilum, *c.* 0.5 × 0.3 mm; *pleurogram* obscure; *funicle* filiform, expanded into a conspicuous, pileiform, creamy white *aril* that is only slightly shorter than the seed. (Figure 1)

Characteristic features. *Branchlets* sparsely to moderately muriculate by minute, red-brown, glandular trichomes at extremities. *Phyllodes* small (6–13 × 1.5–3 mm), glabrous except normally with minute, red-brown, glandular trichomes on normally sparsely tuberculate main nerves and margins, with 3, prominent, widely-spaced main longitudinal nerves, excentrically mucronate with ±pungent point. *Spikes* short (5–7 mm long when dry), sessile or sub-sessile (peduncles to 1 mm long). *Flowers* 4-merous; *sepals* very shortly united at base, narrowly oblong or spatulate, $\frac{2}{3}$ length of petals. *Pod* ±tightly $1\frac{1}{2}$ coiled, 2.5 mm wide, glabrous, brown. *Seeds* small (2–2.5 × 1.5 mm); *aril* large, pileiform and creamy white.

Other specimens examined. WESTERNAUSTRALIA: [localities withheld for conservation purposes] 15 Sep. 2011, P.G. Armstrong PA 11/577 (NSW, PERTH); 3 Dec. 2011, P.G. Armstrong PA 11/720 (PERTH); 10 Apr. 2012, N. Gibson 6444 (AD, CANB, K, PERTH); 21 Sep. 1994, N. Gibson & M. Lyons 1959 (PERTH).

Distribution. Known from a single locality south of the road between Norseman and Hyden, south-west Western Australia. It occurs on two adjacent hills within the Lake Johnston Greenstone Belt (Gower & Bunting 1976) which is an extensive belt of greenstone that extends *c.* 50 km from Round Top Hill (120 km E of Norseman) south-east to the Bremer Range (100 km SW of Norseman). This greenstone belt is comprised of series of highly metamorphosed igneous and sedimentary sequences Romano (2012). Although the belt has been the subject of some floristic survey (Gibson & Lyons 1998) the area is somewhat difficult to access and therefore further surveys may possibly reveal further populations of the new species.

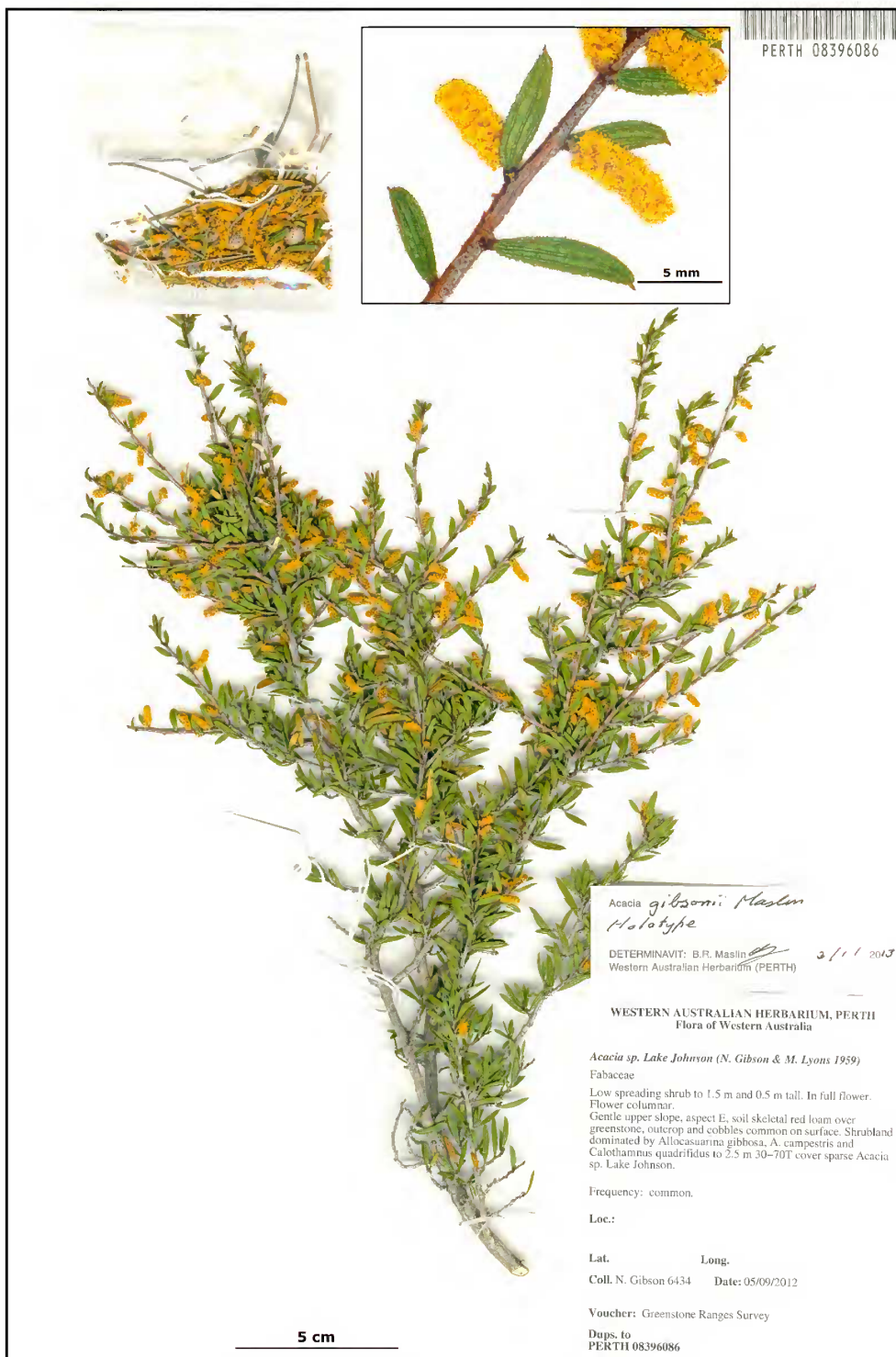


Figure 1. Holotype of *Acacia gibsonii* (PERTH 08396086) with photomicrograph insert of portion of branchlet showing small, strongly 3-nerved phyllodes and short spikes.

Habitat. Grows in skeletal red loam soils over greenstone on gentle rocky slopes in shrubland dominated by *Allocasuarina campestris*. *A. globosa* and *Calothammus quadrifidus*. Although it extends to the clay flats surrounding these low hills, it is not especially common in these regions which are dominated by *Acacia acuminata*, *Allocasuarina campestris*, *Eucalyptus yilgarnensis* and *E. oleosa*.

Phenology. Because of the paucity of collections it is difficult to precisely determine the phenology of this species. However, extant collections show it flowering from mid-September to late October, and judging from these collections it is likely that flowering would extend to about mid-November. The single fruiting specimen (possessing just one pod) was collected in early December; this specimen was one of 1,000s of plants inspected at the time. The remainder were sterile.

Conservation status. *Acacia gibsonii* is listed as Priority One under DEC Conservation Codes for Western Australian Flora, as *Acacia* sp. Lake Johnson (N. Gibson & M. Lyons 1959) (Smith 2012). The species is locally common (many thousands of plants) where it occurs; however, it has a very restricted distribution that is outside the conservation estate.

Etymology. The botanical name honours Dr Neil Gibson, Principal Research Scientist with the Department of Parks and Wildlife. Neil co-discovered (with Michael Lyons) this species in September 1994, and it is very appropriate that this, and other of his achievements, be recognised here. Over the past 24 years Neil has been involved in extensive floristic surveys in south-west Western Australia, with a particular emphasis on the Swan Coastal Plain (Gibson *et al.* 1994), wheatbelt (Gibson *et al.* 2004) and the greenstone and banded ironstone ranges of the Yilgarn (Gibson *et al.* 2012). He was also involved in a floristic survey of the Pilbara region and has made a significant contribution to botanical history through his translation of the seminal work by L. Diels and E. Pritzel on the biogeography of Western Australia (Diels 2007).

Common name. Gibson's Wattle.

Affinities. *Acacia gibsonii* is a member of *Acacia* Mill. sect. *Juliflorae* (Benth.) Maiden & Betche and possesses the following combination of taxonomically important characters: phyllodes flat, 3-nerved and sub-pungent, flowers 4-merous and aggregated into ±sessile spikes, and sepals free or almost so. The only other *Acacia* possessing these attributes is *A. incongesta* R.S. Cowan & Maslin (Cowan & Maslin 1995: 48), a geographically restricted species that occurs near Peak Charles, c. 80 km south-east of where *A. gibsonii* is found. Although these morphological characters strongly indicate affinities between the two species they superficially look very dissimilar, with *A. incongesta* being readily distinguished in the following ways: phyllodes much larger (4–7 cm × 3–4.5 mm), spikes longer (15–25 mm), cream-coloured and loosely flowered, sepals shorter (¼–½ length of petals), pods much larger (to 10.5 cm long, 4 mm wide) and curved (not coiled), and seeds larger (3–4 × 2–2.5 mm) with a larger areole. Furthermore, *A. incongesta* is typically a taller shrub (0.6–4 m) which grows on soils derived from granite. Although both species possess the relatively uncommon character of red-brown resin trichomes on their branchlets and phyllodes, these structures are less well-developed in *A. incongesta* than in *A. gibsonii*.

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